Heparanase and vascular endothelial growth factor expression in the progression of oral mucosal melanoma

Type:

Article

Abstract:
Oral mucosal melanoma is an aggressive neoplasm with poor prognosis. Heparanase is an endo-beta-d-glucuronidase, which cleaves heparan sulphate chains. The vascular endothelial growth factor (VEGF) is the most potent angiogenic mitogen and interaction with its receptor (VEGFR) has been associated with angiogenesis. We investigated the expression of these molecules in the progression of oral mucosal melanoma. Immunohistochemistry was carried out in 15 oral melanotic macules and 19 oral melanomas using heparanase, VEGF, VEGFR-2, CD34 and Ki-67. Microvessel density was determined and subjected to statistical analysis. Heparanase and VEGFR-2 were not expressed in the oral melanotic macule. Atypical melanocytes and melanoma cells expressed heparanase, VEGF and VEGFR-2. An intense expression was noted in the early invasive phase, which marks the crucial transition from in situ to the invasive phase. In the invasive component, heparanase was intense but selective in the invasive fronts and at the periphery of nests unlike the extensive expression of VEGF and VEGFR-2. However, hot spots were only observed at the periphery of the nests. In conclusion, melanoma cells expressed heparanase, VEGF and VEGFR-2. The coexpression of these molecules in atypical melanocytes and melanoma cells suggests their function in cell migration and invasion. Moreover, the intense expression in the crucial transition from in situ to the invasive phase suggests their role in the progression of the tumor. The role of VEGF and VEGFR-2 in angiogenesis was evident only at the periphery of the nests in the invasive components.

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